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Colorado Department
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and Environment

DIST.	LTR	ENC
BOGENBERGER, V.		
BOGNAR, E.	X	X
BRAILSFORD, M.D		
BURNS, T. F.		
DECK, C. A.	X	X
DEGENHART, K.		
DIETERLE, S. E.		
FERRERA, D.W.	X	X
FERRI, M.S.		
GERMAIN, A. L.		
GIACOMINI, J.		
HALL, L.		
ISOM, J. H.		
MARTINEZ, L.A.	X	X
MCLAUGHLIN, J.	X	X
NORTH, K.	X	X
PARKER, A.M.		
POWERS, K.		
RAAZ, R. D.		
RODGERS, A. D.		
SCOTT, G.K.		
SHELTON, D.C.	X	X
SPEARS, M.S.		
TRICE, K.D.		
TUOR, N.R.		
VOORHEIS, G.M.		
WILLIAMS, J. L.		
BUTLER, L.	X	X
COR. CONTROL	X	X
ADMN. RECORD	X	X
PATS/130		

April 24, 2002

Mr. Joe Legare
Assistant Administrator for Environment and Infrastructure
U.S. Department of Energy-RFFO
10808 Highway 93, Unit A
Golden CO 80401-8200

RE: Draft Data Adequacy for the Original Landfill – IM/IRA Decision Document

Dear Mr. Legare:

The Colorado Department of Public Health and Environment and the Environmental Protection Agency have reviewed this report, which addresses data adequacy for the Original Landfill. Because of the impact of this evaluation on future documents, the agencies are submitting the attached comments.

If you have any questions concerning these comments, please contact Carl Spreng (CDPHE) at 303-692-3358, Elizabeth Pottorff (CDPHE) at 303-692-3429 or Jean MacKenzie (EPA) at 303-312-6258.

Sincerely,

Steven H. Gunderson
RFCA Project Coordinator
Colorado Department of Public
Health and Environment

Tim Rehder
Rocky Flats Project Manager
Environmental Protection Agency

Reviewed for Addressee
Corres. Control RFP

5/2/02 bcg
Date By

cc: Scott Surovchak, DOE
Dave Shelton, K-H
Lane Butler, K-H
Administrative Record, T130G
Dan Miller, AGO
Susan Chaki, CDPHE
Steve Tarlton, CDPHE-RFOU

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DOCUMENT CLASSIFICATION
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IA-A-000937

DRAFT DATA ADEQUACY FOR THE ORIGINAL LANDFILL
IM/IRA DECISION DOCUMENT
ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE, GOLDEN, COLORADO

GENERAL COMMENTS

1. The data adequacy report explains that cleanup of the Original Landfill will be conducted as a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) action and four remedial alternatives are being considered. The report also states that the state and federal solid and hazardous waste relations are action-specific applicable or relevant and appropriate requirements (ARARs). However, it is not clear how the remedial actions proposed for Alternative 2 can be implemented in accordance with the state and federal solid and hazardous waste regulations. Alternative 2 is described as removal of radioactive and hazardous waste hot spots and construction of a Resource Conservation and Recovery Act (RCRA)-Subtitle D cover. However, placement of a RCRA-Subtitle D cover is only acceptable when there is no hazardous waste present. The definition of a RCRA-Subtitle C hazardous waste includes waste that is a mixture of solid waste and hazardous wastes (6 Colorado Code of Regulations 1007-3 Part 261.3 and 40 Code of Federal Regulations Part 261.3).

   The data adequacy report states that the Original Landfill has a heterogeneous mixture of hazardous waste and solid waste. Therefore, by definition, all the waste in the landfill must be treated as hazardous, unless proven otherwise. Given the method of disposal, removal of hot spots of hazardous waste does not address the remaining waste in the landfill that is co-mingled with and classified as hazardous, nor is it clear how the site would demonstrate with assurance that the entire contents of the landfill would be characterized without complete excavation in order to document all hazardous waste was removed. Because hazardous waste was known to have been disposed in the original landfill, because of the heterogeneous nature of the landfill, because mixtures of hazardous and solid waste are defined as hazardous waste, and because removal of hot spots may not be practicable, Alternative 2 should be reevaluated. At a minimum this alternative should be revised to require a RCRA-Subtitle C cover, not a RCRA-Subtitle D cover.

2. The executive summary and the introduction to the report state that the purpose of the data adequacy evaluation is to "assess the adequacy of data that are available to complete the comparative analysis portion of the IM/IRA [interim measure/interim remedial action] Decision Document." The Environmental Protection Agency (EPA) is currently performing an independent assessment of the adequacy of the characterization data for the original landfill. The determination of whether the data collected at the Original Landfill is usable for its intended purpose has not yet been completed. As this independent assessment is completed, there is a possibility that additional data gaps will be identified

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that will require resolution as part of the Engineering Evaluation/Cost Analysis (EE/CA) process. Until the usability of the data is verified, any decisions regarding the adequacy of the data should be considered preliminary.

3. The data adequacy report generally lists some ARARs and indicates that a complete list of chemical-, location-, and action-specific ARARs will be compiled as part of the preparation of the IM/IRA decision document. It is not clear how adequacy of data can be assessed without a comprehensive list of ARARs. The EE/CA guidance document indicates that chemical and location-specific ARARs should be identified during the site evaluation and action-specific ARARs should be developed as potential actions are evaluated (EPA 1993). The document should be revised to include a detailed table of ARARs and an evaluation of related data needs and potential data gaps.

4. The data adequacy report explains that the future use for Rocky Flats Environmental Technology Site (RFETS) is a wildlife refuge. However, the current ecological risk assessment for the Original Landfill was conducted prior to determination of the wildlife refuge use. In a meeting on March 27, 2002, with the regulatory agencies, the U. S. Department of Energy (DOE), and Kaiser Hill, it was explained that the ecological risk assessment will be revised for the entire site under the Comprehensive Risk Assessment (CRA) and that the Original Landfill IM/IRA will include a preliminary assessment of changes. However, it is possible that the new ecological risk assessment will impact the decision-making process for alternatives where waste will be left in place. It is not clear how the decision-making process for the Original Landfill can be completed until the future land use of the site is considered. The document should explain what process will be used to modify decisions made in the IM/IRA, if required, based on the CRA. In addition, a schedule should be provided that shows progress and milestones for completion of the CRA, the Original Landfill IM/IRA, and design and implementation of the Original Landfill remedial action.

5. The document states that the IM/IRA decision document is being prepared to support the selection of a remedial action alternative for the Original Landfill. The document under review (the *Data Adequacy Evaluation Report)*, has been prepared to assess the adequacy of data that are available to complete the comparative analysis portion of the IM/IRA document and not the remedial design/remedial action (RD/RA) process. The analysis in the IM/IRA is required to use criteria of cost, effectiveness, and implementation, as provided in the EE/CA guidance document (EPA 1993). However, the data adequacy evaluation report (see Table 3-1 which summarizes the evaluation) indicates key data gaps in the cost and effectiveness sections of the document. Because there are key data gaps, the document should acknowledge that the cost and effectiveness analysis component of the IM/IRA will be limited by the inadequacy of the data or identify characterization actions to be completed prior to the finalization of the IM/IRA (and prior to implementation) to correct the inadequacies reflected in the document.

6. The document indicates that Preble's Meadow Jumping Mouse (PMJM) habitat protection is not applicable to the Alternative 4, "Excavate and Dispose." It is not clear why protection of the PMJM habitat is not required for all alternatives except "no action." Alternative 4 should be revised to address PMJM habitat protection, or justification for not doing so should be provided.

7. The document indicates in several places that Alternative 3 consists of an evapo-transpiration (ET) cover. However, Alternative 3 requires placement of a RCRA-Subtitle C cover. Determination of whether an ET cover would be acceptable as equivalent to a RCRA-Subtitle C cover will be determined at a later date, if Alternative 3 is selected as the remedial action. The report should be revised to refer to a RCRA-Subtitle C cover for Alternative 3 and to delete references to an ET cover.

8. The report includes reference to the *Site Characterization Report (Original Landfill)* (Kaiser Hill 2002). The *Site Characterization Report* is currently a draft and is undergoing simultaneous review as this data adequacy report. Comments from the *Site Characterization Report* should be addressed and incorporated as necessary in the final version of the data adequacy report. In addition, the name of the *Site Characterization Report* varies from place to place in the text of the data adequacy report. For clarity's sake, the correct name of this report should be consistent throughout the report.

9. The report mislabels Appendix A in several places in the text of the report as Appendix I. These errors should be corrected.

SPECIFIC COMMENTS

1. **Executive Summary, Page 2, last paragraph.** This paragraph indicates that the required data are available with exception of waste classification and nature and extent of contamination in the subsurface soils. The paragraph goes on to state that "this information can be deferred to the implementation phase of the preferred alternative." See general comment #5.

   In addition, the final sentence of this paragraph states "The extent of the waste will also be determined during implementation of these alternatives, when the observational approach is used to remove hot spots." The meaning of this sentence is unclear. It is not clear as to how a hot spot removal of waste could be implemented, the feasibility of this approach should be further evaluated. Also, it is unclear what is meant by an "observational approach." Please define this term.

2. **Section 2.1, Page 6.** This section addresses compliance with ARARs and includes a table that lists activities and controls required to comply with ARARs applicable to a remedial alternative. The following are comments on this table:

1. The purpose of the table is unclear. The table should include a table number and a title.

2. The table lists "activities/controls," the four alternatives, and has certain blocks checked off. The meaning of the checks is not clear. This table should be discussed further and the checks explained.

3. The table does not include fencing as a requirement for a RCRA Subtitle-D Prescriptive Cover or an ET Cover. However, fencing or some sort of equivalent control is necessary to limit access to the covers. This table should be revised to indicate that fencing is a control for covers.

4. The column headings for Alternative 3 is "ET Cover." However, Alternative 3 is placement of a RCRA-Subtitle C cover. Determination of whether an ET cover would be equivalent to a RCRA-Subtitle C cover will be determined at a later date, if Alternative 3 is selected as the remedial action. This column heading should be revised to indicate that Alternative 3 is a RCRA-Subtitle C cover.

3. **Section 2.2, Page 6, last paragraph.** This paragraph discusses the nature and extent of contamination. The second sentence states that 88 surface soil samples were collected in the original landfill area. The number of surface soil samples cited in the text of the *Site Characterization Report (Original Landfill)* (Kaiser Hill 2002) is 69 while the surface soil figures (Figures 5-1 and 5-2) from this report show 70 samples. The discrepancy between these numbers should be corrected. It is not possible to verify the number of subsurface soil samples from the *Site Characterization Report* . However, the number of subsurface soil samples should be verified and corrected as necessary.

4. **Section 2.2, Page 7, Paragraph 1.** This section addresses the ability to achieve remedial action objectives (RAOs) and explains that sufficient information to determine whether the RAOs can be achieved for Alternative 2 (hot spot removal and construction of a RCRA Subtitle-D cover) will not be available until implementation. If it is not possible to determine whether Alternative 2 can meet the RAOs until implementation, then it may not be an appropriate option. Alternative 2 should be reviewed to determine what data are necessary to achieve the RAOs.

5. **Section 2.2, Page 7, Paragraph 2.** This section discusses the ability of the proposed alternatives to achieve the RAOs. The second paragraph describes the nature and extent of contamination and indicates the volume of waste fill is approximately 160,000 cubic yards (cy). This appears to be inconsistent with the first bullet on page 5, which indicates that the landfill is estimated to contain 70,000 cy of wastes. The significance of the classification of waste and waste fill should be defined.

6. **Section 2.2, Page 7, Paragraph 6.** This paragraph addresses future land use and explains that designation of RFETS as a wildlife refuge exempts the Original Landfill

from transfer to the U.S. Fish and Wildlife Service (USFWS). It is clear that if any waste remains in place (Alternatives 1, 2, and 3) the Original Landfill would require maintenance under the ownership of the U.S. Department of Energy (DOE). However, it is not clear why transfer of the Original Landfall to the USFWS is not possible if Alternative 4 (excavation of all of the Original Landfall waste fill) is implemented. Transfer of the Original Landfill site to USFWS under Alternative 4 should be addressed.

7. **Section 2.4, Page 9, last paragraph.** This section addresses waste classification and states, "At the time of extraction, the waste would be analyzed and classified as solid or hazardous under RCRA, or low-level radiological waste." However, according to RCRA, waste that is a mixture of hazardous waste and solid waste is classified as hazardous waste (6 Colorado Code of Regulations 1007-3 Part 261.3 and 40 Code of Federal Regulations Part 261.3). It is also unclear how segregation of the waste and waste fill material would be implemented, unless the hazardous waste and solid waste can be clearly delineated during complete excavation. The approach for classification and segregation of waste and waste fill in the Original Landfill should be reevaluated especially for Alternative 2 (removal of hazardous waste vs. contaminated soil). The 3rd sentence of this paragraph should be corrected to reflect that separation of hazardous waste from solid waste in the landfill may only be feasible in Alternative 4.

8. **Section 2.5, Page 10.** This section addresses the short-term effectiveness of each alternative. The third bullet explains that the threatened and endangered species known to currently exist at RFETS include the PMJM, the bald eagle, and the black-tailed prairie dog. However, the discussion throughout the remaining sections of the data adequacy report address only the PMJM. The document should also clearly discuss impact, if any, on the bald eagle and the black-tailed prairie dog.

9. **Section 2.6, Page 12.** The Waste/ Soil Evaluation second paragraph discusses many studies characterizing the geology of the site. The 1995 Geologic Characterization report contains a discussion of inactive but fractured and water bearing faults in the bedrock. Fault 2 identified in this report is mapped just at the western edge of the OLF, however this location is not well constrained by the data. One of the wetlands within the OLF appears to trend to the southwest rather than the southeast direction normal for a tributary to Woman Creek, a "fishhook drainage" which could be a surface expression of this bedrock fault. Data to evaluate this feature can be collected in the geotechnical evaluation necessary to slurry wall component of the proposed alternatives but may pose a data gap in determining whether these alternatives are technically feasible.

10. **Section 2.6, Page 12.** The Potentiometric Surface Evaluation does not discuss any analysis being done in the Site Wide Water Balance modeling project to evaluate the impacts of the slurry wall in channeling ground water to other pathways on this hillside. The SID is not keyed into bedrock and would only intercept ground water flows above its base elevation.

11. **Section 2.6, Page 13.** This section discusses technical feasibility. The last bullet on page13 discusses potential borrow sources and references a 1994 study, a 1999 study, and a third study. Because the discussion indicates the third study concluded that the LaFarge site contained soil suitable for use in an ET and prescriptive cover, the reference and date of the third study should be provided. Furthermore, suitability of soil for use in an ET cover is subject to review by the regulatory agencies.

12. **Section 2.8, Page 15.** This section discusses administrative feasibility. The second bullet discusses the identification of ARARs and states "To complete the evaluation of administrative feasibility, ARARs that cannot be met, and therefore require exemptions, would be identified." The statement implies that "exemptions" are automatically granted when a requirement cannot be met by a proposed remedial action. The inability of a particular set of alternatives to meet an ARAR may only indicate that additional alternatives should be considered. This sentence should be clarified and specific ARARs should be discussed.

13. **Section 2.11, Page 16 and 17 and Table 3-1.** This section presents the projected costs for each alternative and the table presents the data adequacy evaluation matrix. The lack of definitive knowledge regarding waste classification and the nature and extent of contamination in the original landfill are not identified as data gaps for alternatives 3 or 4. It is unclear how the projected costs can be accurately determined without this knowledge. Waste classification and nature and extent of contamination should be identified as data gaps in this section and in Table 3-1 for the cost criteria.

14. **Section 2.12, Page 17.** This section describes Rocky Flats Cleanup Agreement (RFCA) IM/IRA requirements. However, the only requirement listed is "NEPA Considerations." It is not clear if there are other requirements that should be addressed. This section should be revised to address all RFCA IM/IRA requirements or clarify that NEPA considerations are the only other RFCA IM/IRA requirements.

15. **Section 4.0, Page 20.** Two citations are labeled "Kaiser Hill, 2002a." This error should be corrected. In addition, citations in the text refer to a "Kaiser Hill, 2002." The citations should be checked to ensure they are referencing the correct document.

16. **Table 3-1.** This table is a matrix that summarizes the data adequacy evaluation for the four alternatives. The following are comments on this table:

    1. The column heading for Alternative 3 is "ET Cover." However, Alternative 3 is placement of a RCRA-Subtitle C cover. Determination of whether an ET cover would be acceptable as equivalent to a RCRA-Subtitle C cover will be determined at a later date, if Alternative 3 is selected as the remedial action. This column heading should be changed to accurately reflect the fact that Alternative 3 consists of a RCRA-Subtitle C cover.

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2. The evaluation factors do not address overall protection of human health and the environment which is a key criteria in the EE/CA Guidance document (EPA 1993). The table should be revised to address potential data gaps in evaluating the overall protection of human health and the environment as a component in evaluating effectiveness of the four alternatives.

3. The text identifies two alternatives using a prescriptive cover, three alternatives using an ET cover, and two alternatives using the "excavate and dispose" approach. However, the table does not include all of these alternatives (i.e., alternatives 2M, 3A, 3B, 3M, 4A, and 4B are not listed on the table). These should all be included in the table to summarize the data adequacy evaluation, or an explanation should be provided to indicate why they are not included in the table.

4. In the "excavate and dispose" alternative (Alternative 4), there are several row items that are checked "N/A [not applicable]." It is not clear why data concerning slope measurement, potentiometric surface, thickness of the waste, general waste composition, and existing topography are not applicable. The table should be revised to indicate that slope stability and settlement evaluation factors are applicable to Alternative 4.

5. It is not clear why the identified data gaps referring to "effectiveness to comply with ARARs" are designated GAP 01 (low significance, to be resolved during implementation), instead of GAP 02 (high significance, to be resolved prior to implementation). A similar comment applies to the cost item and the GAP 01 data gap designated in the "excavate and dispose" column. It seems prudent practice to know whether the remedial action will have a chance of meeting ARARs prior to implementation rather than during implementation when a contractor is actually mobilized and working on site. The significance of the data gaps and the appropriate time for resolving the gaps should be reviewed and the table modified appropriately.

6. The evaluation factors include information on clay sources. For Alternative 3, the evaluation factors should also include information on geosynthetic liners (composite liners consist of clay and geosynthetic material) and biota barrier material because these materials are required for RCRA-Subtitle C covers. The evaluation factors should be revised to include all material requirements.

7. The evaluation factors include "Geosynthetic Clay Liner Properties." This material is a product that may or may not be feasible for a particular cover design. It is not clear why this material is included on the table and should be deleted unless rationale for the significance of this product to evaluation implementability of the various alternatives can be demonstrated.

8. Since characterization involves defining the nature and extent of contamination, the table should be revised for Alternatives 3 and 4 designating Gap 02 for characterization because this information (nature and extent of contamination in subsurface soils) is not available and would impact implementation of these alternatives.

17. **Appendix A.** Appendix A contains a description of preliminary remedial alternatives. A site map should be included in this appendix. This map should indicate current information related to wetlands and specific habitats of concern.

18. **Appendix A, Page A-1, first paragraph.** The last sentence of the first paragraph states "These alternatives include a No Further Action alternative and four practicable alternatives for remediation of the Original Landfill." There are three alternatives other than the No Further Action. This error should be corrected.

19. **Appendix A, Page A-3.** This appendix contains a description of remedial alternatives. The second paragraph on page A-3 discusses Alternative 3M and states that "bioengineering measures that are compatible.....would be used for slope stabilization purposes." The meaning of "bioengineering measures" is not clear and should be clarified. An example of a "bioengineering measure" in this context should be discussed.

REFERENCES

Colorado Code of Regulations (CCR). Colorado Hazardous Waste Regulations. 6 CCR 1007-3, Part 261, Identification and List of Hazardous Waste.

Code of Federal Regulations (CFR). Title 40, Protection of the Environment. Part 261, Identification and List of Hazardous Waste.

Kaiser Hill. 2002. *Draft Site Characterization Report.* Rocky Flats Environmental Technology Site Original Landfill. March 29.

United States Environmental Protection Agency (EPA). 1993. *Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA.* EPA540-R-93-057. Washington D.C. August.

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